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Determining the 'size' of orbital measures on compact, simple Lie groups

Orbital measures are the uniform measures supported on conjugacy classes in the Lie group G. They are always singular measures and are continuous provided the conjugacy class is non-trivial. These measures satisfy a striking L^2-singular dichotomy: Either $\mu^k \in L^2$ or μ^k is singular to Haar measure on G. In this talk we will discuss how the Weyl character formula and other ideas from Lie theory are used to determine the index where the change occurs.